

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for processing a document that includes a plurality of fields having respective contents that have been filled into the fields, the method comprising:
providing labels to be assigned respectively to the fields and one or more rules applicable to the filled-in contents of the fields according to the labels assigned thereto;
machine reading the respective contents that have been filled into the fields;
machine assigning the labels to the fields ~~responsive to application of the rules to the contents~~ by testing the contents of the fields against the rules in order to find an assignment of the labels to the fields that satisfies the rules; and
extracting and arranging the contents in a database record, in which the contents of the fields are identified by the assigned labels.
2. (Original) A method according to claim 1, wherein the rules comprise a criterion to be applied to the contents of a single one of the fields.
3. (Original) A method according to claim 1, wherein the rules comprise a relation between the contents of two or more of the fields.
4. (Original) A method according to claim 3, wherein the contents comprise numbers, and wherein the relation comprises a mathematical relationship between the numbers contained in the two or more of the fields.
5. (Original) A method according to claim 3, wherein the contents comprise alphanumeric characters, and wherein the relation comprises a semantic relationship between words formed by the characters.
6. (Original) A method according to claim 1, and comprising providing one or more geometrical rules indicating an expected geometrical relationship between two or more of the fields

according to the labels assigned thereto, and wherein assigning the labels to the fields comprises applying the geometrical rules along with the rules applicable to the contents of the fields.

7. (Original) A method according to claim 1, wherein assigning the labels comprises making a test assignment of the labels to the fields, and rejecting the test assignment if the contents of the assigned fields do not satisfy the rules applicable according to the labels.

8. (Original) A method according to claim 7, wherein making the test assignment comprises iteratively testing substantially all possible assignments of the labels to the fields, so as to find one or more candidate assignments for which the contents of the assigned fields satisfy all of the applicable rules.

9. (Original) A method according to claim 1, wherein assigning the labels to the rules comprises finding one or more candidate assignments of all of the labels to the respective fields, for which the contents of the assigned fields satisfy all of the applicable rules, and processing the contents of the fields responsive to the one or more candidate assignments.

10. (Original) A method according to claim 9, wherein finding the one or more candidate assignments comprises finding a plurality of alternative candidate assignments for which the contents of the assigned fields satisfy all of the applicable rules, and comparing the candidate assignments so as to unequivocally assign at least a subset of the labels to the respective fields.

11. (Original) A method according to claim 1, wherein the document comprises one of a plurality of form documents sharing a common layout, and wherein assigning the labels comprises making an assignment with respect to all of the form documents.

12. (Original) A method according to claim 11, wherein making the assignment comprises choosing the assignment so as to satisfy a statistical criterion with respect to satisfaction

of the applicable rules by the contents of the fields in at least a subset of the plurality of form documents.

13. (Currently amended) Apparatus for processing a document that includes a plurality of fields having respective contents that have been filled into the fields, the apparatus comprising a document processor arranged to receive a listing of labels to be assigned respectively to the fields and one or more rules applicable to the filled-in contents of the fields according to the labels assigned thereto, and further arranged to machine read the respective contents that have been filled into the fields and to machine assign the labels to the fields ~~responsive to application of the rules to the contents by testing the contents of the fields against the rules in order to find an assignment of the labels to the fields that satisfies the rules~~ and to extract and arrange the contents in a database record, in which the contents of the fields are identified by the assigned labels.

14. (Original) Apparatus according to claim 13, wherein the rules comprise a criterion to be applied to the contents of a single one of the fields.

15. (Original) Apparatus according to claim 13, wherein the rules comprise a relation between the contents of two or more of the fields.

16. (Original) Apparatus according to claim 15, wherein the contents comprise numbers, and wherein the relation comprises a mathematical relationship between the numbers contained in the two or more of the fields.

17. (Original) Apparatus according to claim 15, wherein the contents comprise alphanumeric characters, and wherein the relation comprises a semantic relationship between words formed by the characters.

18. (Original) Apparatus according to claim 13, wherein the rules further comprise one or more geometrical rules indicating an expected geometrical relationship between two or more of

the fields according to the labels assigned thereto, and wherein the processor is arranged to apply the geometrical rules along with the rules applicable to the contents of the fields so as to assign the labels to the fields.

19. (Original) Apparatus according to claim 13, wherein the processor is arranged to make a test assignment of the labels to the fields, and to reject the test assignment if the contents of the assigned fields do not satisfy the rules applicable according to the labels.

20. (Original) Apparatus according to claim 19, wherein the processor is arranged to iteratively test substantially all possible assignments of the labels to the fields, so as to find one or more candidate assignments for which the contents of the assigned fields satisfy all of the applicable rules.

21. (Original) Apparatus according to claim 13, wherein the processor is arranged to find one or more candidate assignments of all of the labels to the respective fields, for which the contents of the assigned fields satisfy all of the applicable rules, and to process the contents of the fields responsive to the one or more candidate assignments.

22. (Original) Apparatus according to claim 21, wherein the one or more candidate assignments comprise a plurality of alternative candidate assignments for which the contents of the assigned fields satisfy all of the applicable rules, and wherein the processor is arranged to compare the candidate assignments so as to unequivocally assign at least a subset of the labels to the respective fields.

23. (Original) Apparatus according to claim 13, wherein the document comprises one of a plurality of form documents sharing a common layout, and wherein the processor is arranged to make an assignment of the labels with respect to all of the form documents.

24. (Original) Apparatus according to claim 23, wherein the processor is arranged to make the assignment so as to satisfy a statistical criterion with respect to satisfaction of the applicable rules by the contents of the fields in at least a subset of the plurality of form documents.

25. (Currently amended) A computer software product for processing a document that includes a plurality of fields having respective contents that have been filled into the fields, the product comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a computer, cause the computer to receive a listing of labels to be assigned respectively to the fields and one or more rules applicable to the filled-in contents of the fields according to the labels assigned thereto, to read the respective contents that have been filled into the fields, and to assign the labels to the fields ~~responsive to application of the rules to the contents~~ by testing the contents of the fields against the rules in order to find an assignment of the labels to the fields that satisfies the rules, and to extract and arrange the contents in a database record, in which the contents of the fields are identified by the assigned labels.

26. (Currently amended) A method for computerized data processing, comprising:
receiving information that has been filled into a plurality of fields in a form on a computer;

providing labels to be assigned respectively to the fields and one or more geometrical rules indicating an expected geometrical relationship between two or more of the filled-in fields in the form according to the labels assigned to the fields; and

assigning the labels to the fields ~~responsive to the information that has been filled into the fields and to application of the rules to the fields~~ by testing the information in the fields against the rules in order to find an assignment of the labels to the fields that satisfies the rules; and

extracting and arranging the information in a database record, in which the information that has been filled into the fields is identified by the assigned labels.

27. (Original) A method according to claim 26, wherein the form comprises a table, and wherein receiving the information comprises receiving characters keyed into the fields of the table by an operator.

28. (Currently amended) Apparatus for data processing, comprising a form processor, which is arranged to receive information that has been filled into a plurality of fields in a form on a computer, and to receive a listing of labels to be assigned respectively to the fields and one or more geometrical rules indicating an expected geometrical relationship between two or more of the filled-in fields in the form according to the labels assigned to the fields, and to assign the labels to the fields ~~responsive to the information that has been filled into the fields and to application of the rules to the fields~~ by testing the information in the fields against the rules in order to find an assignment of the labels to the fields that satisfies the rules, and to extract and arrange the information in a database record, in which the information that has been filled into the fields is identified by the assigned labels.

29. (Currently amended) A computer software product, comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a computer, cause the computer to receive information that has been filled into a plurality of fields in a computerized form, and to receive a listing of labels to be assigned respectively to the fields and one or more geometrical rules indicating an expected geometrical relationship between two or more of the filled-in fields in the form according to the labels assigned to the fields, and to assign the labels to the fields ~~responsive to the information that has been filled into the fields and to application of the rules to the fields~~ by testing the information in the fields against the rules in order to find an assignment of the labels to the fields that satisfies the rules, and to extract and arrange the information in a database record, in which the information that has been filled into the fields is identified by the assigned labels.

30. (Previously presented) A method according to claim 1, wherein the document is a paper document with a template preprinted thereon defining the fields, and wherein reading the

respective contents comprises capturing an image of the document after the contents have been marked inside the fields defined by the template, and processing the image to extract the contents.